

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1-12. (Canceled)

13. (Currently Amended) A rotation sensor for outputting a pulse signal, which has a frequency corresponding to a rotation speed of a rotor, to an output wire, the rotation sensor ~~being characterized by~~ comprising:

a rotation detection unit for outputting a signal corresponding to the rotation speed of the rotor;

a waveform shaping unit for receiving an output signal from the rotation detection unit and outputting a pulse signal corresponding to the received signal;

a first signal processing unit for receiving the pulse signal output from the waveform shaping unit and outputting a first information signal based on the received pulse signal;

a second signal processing unit for receiving the first information signal output from the first signal processing unit, receiving a first external information signal from a first external information source through an input wire, and outputting a second information signal including the first information signal and the first external information signal;

a modulation unit for receiving the second information signal output from the second signal processing unit, modulating the received second information signal into a carrier wave having a first frequency that is higher than the frequency of the pulse signal, and outputting the carrier wave;

a reception unit for receiving a second external information signal from a second external information source through a wireless, frequency converting the received second external information signal to a third information signal having a second frequency that is different from the first frequency and is higher than the frequency of the pulse signal, and outputting the third information signal; and

an adding unit for receiving the pulse signal output from the waveform shaping unit, the carrier wave output from the modulation unit, and the third information signal output from the reception unit to output to the output wire an output signal obtained by superimposing the received pulse signal, carrier wave, and third information signal.

14. (Currently Amended) The rotation sensor according to claim ~~1~~13, ~~characterized in that~~ wherein the rotation sensor detects the rotation speed of a vehicle wheel.

15. (Currently Amended) The rotation sensor according to claim ~~1~~13 ~~or 2~~, ~~characterized in that~~ wherein the second external information signal is a signal from a tire air pressure sensor arranged in a tire.

16. (Currently Amended) The rotation sensor according to ~~any one of claims 1 to 3~~ 13 to 3, ~~characterized in that~~ wherein the first external information signal is a signal from a vehicle height sensor.

17. (Currently Amended) The rotation sensor according to ~~any one of claims 1 to 4~~ 13 to 4, ~~characterized in that~~ wherein:

the first frequency is a frequency in a range of 100 KHz through 10 MHz.

18. (Currently Amended) The rotation sensor according to ~~any one of claims 1 to 5~~ 13 to 5, ~~characterized in that~~ wherein:

the modulation unit intermittently modulates the second information signal into the carrier wave.

19. (Currently Amended) The rotation sensor according to ~~any one of claims 1 to 6~~ 13 to 6, ~~characterized in that~~ wherein:

the modulation unit modulates the second information signal by performing amplitude modulation to generate the carrier wave.

20. (Currently Amended) The rotation sensor according to ~~any one of claims 1 to 13 to~~ 6, ~~characterized in that~~ wherein:

the modulation unit modulates the second information signal by performing frequency modulation to generate the carrier wave.

21. (Currently Amended) The rotation sensor according to ~~any one of claims 1 to 13 to~~ 6, ~~characterized in that~~ wherein:

the modulation unit modulates the second information signal by performing phase modulation to generate the carrier wave.

22. (New) The rotation sensor according to claim 14, wherein the second external information signal is a signal from a tire air pressure sensor arranged in a tire.

23. (New) The rotation sensor according to claim 14, wherein the first external information signal is a signal from a vehicle height sensor.

24. (New) The rotation sensor according to claim 15, wherein the first external information signal is a signal from a vehicle height sensor.

25. (New) The rotation sensor according to claim 22, wherein the first external information signal is a signal from a vehicle height sensor.

26. (New) The rotation sensor according to claim 14, wherein:
the first frequency is a frequency in a range of 100 KHz through 10 MHz.

27. (New) The rotation sensor according to claim 15, wherein:
the first frequency is a frequency in a range of 100 KHz through 10 MHz.

28. (New) The rotation sensor according to claim 16, wherein:
the first frequency is a frequency in a range of 100 KHz through 10 MHz.

29. (New) The rotation sensor according to claim 22, wherein:
the first frequency is a frequency in a range of 100 KHz through 10 MHz.

30. (New) The rotation sensor according to claim 14, wherein:
the modulation unit intermittently modulates the second information signal into the carrier wave.

31. (New) The rotation sensor according to claim 15, wherein:

the modulation unit intermittently modulates the second information signal into

the carrier wave.

32. (New) The rotation sensor according to claim 16, wherein:

the modulation unit intermittently modulates the second information signal into

the carrier wave.